WHAT IS CLAIMED IS:

1. A wiring member comprising:

a sheet-like porous substrate provided with a large number of open-cells which are three-dimensionally branched and opened to a first major surface as well as to a second major surface of the porous substrate, apertures of the open-cells on the first major surface having an average diameter and an average number of the apertures, at least one of which is smaller than that of the second major surface; and

a conductive portion formed on the first major surface of the porous substrate and formed at least partially an inter-penetrating structure together with the porous substrate at an interface of the porous substrate.

2. The wiring member according to claim 1, wherein the porous substrate is formed of an organic material.

3. The wiring member according to claim 1, wherein the porous substrate is formed of an inorganic material.

4. The wiring member according to claim 1, wherein the porous substrate is formed of a composite material containing an organic material and an inorganic material.

5. The wiring member according to claim 1, wherein the average diameter of apertures of the first

major surface of the porous substrate is 20% or less of the average diameter of apertures of the second major surface.

6. The wiring member according to claim 5, wherein an average diameter of apertures of the first major surface of the porous substrate is within the range of 1 to 100 nm.

7. The wiring member according to claim 5, wherein an average diameter of the apertures of the second major surface of the porous substrate is within a range of 0.5 to 10μm.

8. The wiring member according to claim 1, wherein an average number of the apertures of the first major surface of the porous substrate is 80% or less of an average number of the apertures of the second major surface.

9. The wiring member according to claim 8, wherein an average number of the apertures of the first major surface of the porous substrate is within a range of 5 to 40%.

10. The wiring member according to claim 8, wherein an average number of the aperture of the second major surface of the porous substrate is within a range of 50 to 95%.

11. The wiring member according to claim 1, wherein the conductive portion includes an exposed portion which is exposed from the first major surface

of the porous substrate, and the inter-penetrating portion has a thickness which is 5 to 50% of the thickness of the exposed portion.

12. A method for manufacturing a wiring member comprising:

preparing a sheet-like porous substrate provided with a large number of open-cells which are three-dimensionally branched and opened to a first major surface as well as to a second major surface of the porous substrate, apertures of the first major surface having an average diameter and an average numerical aperture, at least one of which is smaller than that of the second major surface;

coating a suspension comprising a dispersing medium and conductive fine particles dispersed in the dispersing medium on at least part of the first major surface;

permitting the dispersing medium of the suspension to penetrate into the porous substrate while permitting a portion of the conductive fine particles to remain on the first major surface, the residual portion of the conductive fine particles being permitted to penetrate into the open-cells; and

heat-treating the porous substrate having the conductive fine particles deposited on the first major surface and penetrated into the open-cells to sinter the conductive fine particles, thereby forming a

conductive portion on the first major surface and forming at least partially an inter-penetrating structure between the conductive fine particles and the porous substrate.

13. The method for manufacturing a wiring member according to claim 12, wherein an average diameter of apertures of the first major surface of the porous substrate is 20% or less of an average diameter of apertures of the second major surface.

14. The method for manufacturing a wiring member according to claim 13, wherein an average diameter of apertures of the first major surface of the porous substrate is within the range of 1 to 100 nm.

15. The method for manufacturing a wiring member according to claim 12, wherein an average numerical aperture of the first major surface of the porous substrate is 80% or less of an average numerical aperture of the second major surface.

16. The method for manufacturing a wiring member according to claim 15, wherein an average numerical aperture of the first major surface of the porous substrate is within the range of 5 to 40%.

17. The method for manufacturing a wiring member according to claim 12, wherein the conductive fine particles have a particle diameter ranging from 1 to 100 nm.

18. The method for manufacturing a wiring member

according to claim 12, wherein the conductive fine particles have a particle diameter which is 10 to 100% of an average diameter of apertures of the first major surface of the porous substrate.

19. The method for manufacturing a wiring member according to claim 12, wherein the suspension is coated by a screen printing method, an intaglio printing method or an ink jet printing method.

20. The method for manufacturing a wiring member according to claim 12, wherein the sintering of the conductive fine particles is performed for 30 minutes to 5 hours at a temperature ranging from 150 to 250°C.